

**Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601
(502) 573-3382**

**STATE ORIGIN
AIR QUALITY PERMIT**

Permittee Name: Recycling Solutions Technology, LLC
Mailing Address: P.O. Box 367, Allen, Kentucky 41601

is authorized to operate a municipal solid waste gasification plant

Source Name: Recycling Solutions Technology, LLC
Mailing Address: Same as above
Source Location: Kentucky Route 3, Davella, Kentucky

Source ID #: 21-159-00026
SIC Code: 562

Regional Office Hazard Regional Office
233 Birch Street, Suite 2
Hazard, KY 41701
(606) 435-6022

County: Martin

Permit Number: S-03-020
Log Number: 55525
Permit Type: Minor Construction/Operating

Application
Complete Date: April 10, 2003
Issuance Date: May 20, 2003
Expiration Date: May 20, 2013

**John S. Lyons, Director
Division for Air Quality**

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction and operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify an affected facility without first having submitted a complete application and receiving a permit for the planned activity from the Division, except as provided in this permit or in 401 KAR 52:040, State-origin permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining other permits, licenses, or approvals that may be required by the Cabinet or other federal, state, or local agencies.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

Emission Unit: 01 (01) - Municipal Solid Waste Gasifier (MSWG)

Description:

Municipal Solid Waste Gasifier (includes kiln and stack for emissions)

Controls: Reduction Chamber, Spray Dryer, and Baghouse

Fuel: Natural Gas

Maximum Rated Capacity: 1.42 tons per hour

Manufacturer: Shop Fabricated

Construction Commenced: 2003

APPLICABLE REGULATIONS:

Regulation 401 KAR 59:021, *New municipal solid waste incinerators*, applicable to each affected facility which means each Municipal Solid Waste Incinerator unit for which construction, modification, or reconstruction is commenced on or after December 20, 1989.

1. Operating Limitations:

- a) Pursuant to 401 KAR 59:021, Section 8(1), the facility shall not operate at a load level greater than 100 percent of the maximum MSWG unit load of 1.42 tons/hour. Demonstrating that the facility will not operate in excess of 1.42 tons/hour may be demonstrated as follows:

$$\text{Tons MSW Processed/Hour} = \text{Tons MSW Processed/Day} \div \text{Hours of Operation/Day}$$

- b) Pursuant to Regulation 401 KAR 59:021, Section 8(3)(a), the reduction chamber shall be maintained at a minimum temperature of 982 degrees Celsius (1,800 degrees Fahrenheit).

Compliance with this requirement may be demonstrated with the records produced by a continuous monitoring system. Temperature shall be calculated in 4-hour block averages.

- c) Pursuant to Regulation 401 KAR 59:021, Section 8(3)(b), the minimum secondary chamber residence time shall be 1.0 second.

Compliance with this requirement may be demonstrated by use of the following equation:

$$T = L / V$$

Where:

T = Residence Time in Chamber

L = Length of Chamber

V = Exit Gas Velocity as calculated in EPA Method 2

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE

REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d) Pursuant to Regulation 401 KAR 59:021, Section 8(3)(c), the facility shall have interlocks or other process control devices to prevent operation of unit until the minimum temperature and residence time is assured.
- e) Pursuant to Regulation 401 KAR 59:021, Section 8(5), no unprocessed municipal solid waste (MSW) or refuse-derived fuel (RDF) shall be gasified in the facility.
- f) Pursuant to Regulation 401 KAR 59:021, Section 8(6), no yard waste or vehicle batteries shall be processed in the facility.
- g) Pursuant to Regulation 401 KAR 59:021, Section 8(7), prior to initial start-up, a program shall be established and approved by the Cabinet to remove household batteries from MSW prior to gasification.
- h) Pursuant to Regulation 401 KAR 59:021, Section 8(9), the ash removed from the gasifier shall be tested to determine the toxicity of the ash, using tests required in Title 401, Chapter 31. Ash which is determined to be a hazardous waste shall be disposed of according to the administrative regulations of the Division of Waste Management. Ash which is determined to be not hazardous waste shall be disposed of in a contained landfill.

To determine compliance with this requirement, the facility must maintain records of analysis for toxicity of the ash from the affected facility and records of the disposal of the ash.

- i) Pursuant to Regulation 401 KAR 59:021, Section 8(10), since the facility will receive MSW from generators that are noncontiguous to the incineration site, it shall comply with the operating requirements for contained landfills in 401 KAR 48:090, Section 2.
- j) Pursuant to Regulation 401 KAR 59:021, Section 8(10), since the facility will receive MSW from generators that are noncontiguous to the incineration site, it shall comply with the design requirements for contained landfills in 401 KAR 48:070, Section 15.
- k) Pursuant to Regulation 401 KAR 59:021, Section 9(1), within 24 months from the date that American Society of Mechanical Engineers (ASME) adopts a certification program for municipal solid waste combustor (incinerator) unit operators, each facility operator and shift supervisor of the facility shall obtain and keep current either a provisional or operator certification from ASME.
- l) Pursuant to Regulation 401 KAR 59:021, Section 9(2), the facility may not be operated unless an ASME certified shift supervisor or ASME certified chief facility operator is on duty at all times during periods of MSWG unit operation. (This requirement shall take effect 24 months after the date that ASME adopts the certification program referred to in the preceding paragraph (h).

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Compliance with Sections B (1)(h and i) may be demonstrated by maintaining ASME

certification records at the facility.

- m) Pursuant to Regulation 401 KAR 59:021, Section 10(8)(e), the procedures in 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the CEMS.
- n) Pursuant to Regulation 401 KAR 59:021, Section 10(8)(f), the CEMS shall conform to the applicable performance specifications in 40 CFR Part 60, Appendix B or Kentucky Specification 4A.
- o) Pursuant to Regulation 401 KAR 59:021, Section 10(8)(g), the requirements of Kentucky Procedure 1 shall be met in the operation of the CEMS.

2. Emission Limitations:

- a) Pursuant to Regulation 401 KAR 59:021, Section 3, *Standards for MSWG Metals*, on and after the date on which the initial performance test is completed, particulate emissions from the affected facility shall not exceed 34 milligrams per dry standard cubic meter (0.015 grains per dry standard cubic foot), corrected to seven percent oxygen (dry basis). Emissions shall not exceed 10 percent opacity.
- b) Pursuant to Regulation 59:021, Section 4, *Standards for MSWG Organics*, on and after the date in which the initial performance test is completed, emissions that contain dioxin or furan emissions shall not exceed 75 nanograms per normal cubic meter (14 grains per billion standard cubic feet), corrected to 7 percent oxygen (dry basis).
- c) Pursuant to Regulation 59:021, Section 5, *Standards for MSWG Acid Gases*, on and after the date on which the initial performance test is completed, emissions that contain sulfur dioxide shall not exceed 50 percent of the uncontrolled sulfur dioxide emission rate (50 percent reduction by weight) or 30 parts per million by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent.
- d) Pursuant to Regulation 59:021, Section 5, *Standards for MSWG Acid Gases*, on and after the date on which the initial performance test is completed, emissions that contain hydrogen chloride shall not exceed 20 percent of the uncontrolled hydrogen chloride emission rate (80 percent reduction by weight) or 25 parts per million by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent.
- e) Pursuant to Regulation 59:021, Section 6, *Standards for MSWG Acid Gases*, on and after the date on which the initial performance test is completed, no owner or operator of an affected facility located within a large MSWI plant shall cause or allow to be discharged into the atmosphere from the affected facility emissions that contain nitrogen oxides in excess of 120 parts per million by volume, corrected to seven (7) percent oxygen (dry basis).

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- f) Pursuant to Regulation 401 KAR 59:021, Section 7, *Standards for Carbon Monoxide*, on and after the date on which the initial performance test is completed, the facility shall not exceed

the carbon monoxide standard 50 parts per million by volume for a modular starved air process. The measurement shall be taken at the outlet of the reduction chamber, corrected to 7 percent oxygen (dry basis) using a 4-hour block average.

Compliance with the MSWG Metals standards may be determined by using the following:

- 1) Method 1 shall be used to select sampling sites and the number of traverse points. Method 2 shall be used to determine the stack gas velocity and volumetric flow rates.
- 2) Method 3 shall be used for gas analysis.
- 3) Method 5 shall be used for determining compliance with the particulate matter emission standard. The minimum sample volume shall be 1.7 cubic meters (60 cubic feet). The temperature of the sample gas in the probe and filter holder shall be 120 (plus or minus) 14 C (248 (plus or minus) 25 F). An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.
- 4) Both Method 9 and CEMS shall be used for determining compliance with the opacity standard. However, Method 9 results shall take precedence over CEMS data if concurrent readings occur.
- 5) The facility shall install, calibrate, maintain and operate a CEMS for measuring opacity and shall record the output of the system.

Compliance with organics standards may be determined by:

Kentucky Method 23 shall be used for determining compliance with dioxin or furan emission standards. The sampling time shall be 4 hours and the minimum sampling volume shall be 4.0 cubic meters (140 cubic feet).

Compliance with the sulfur dioxide standards may be determined by using the following:

- 1) The percentage reduction in the uncontrolled sulfur dioxide emissions (%P_{SO₂}) shall be computed using the following formula:

$$\%P_{SO_2} = [(E_i - E_o) / E_i] \times 100$$

Where: %P_{SO₂} is the percentage reduction in uncontrolled sulfur dioxide emissions.

E_i is the daily uncontrolled sulfur dioxide emission rate.

E_o is the daily sulfur dioxide emission rate measured at the outlet of the acid gas control device

- 2) Methods 6, 6A, or 6C, and 19 shall be used for determining the sulfur dioxide emission rate.
- 3) The sulfur dioxide performance test shall be conducted over 24 consecutive unit operating hours at maximum MSWG unit load. Compliance with the sulfur dioxide standard shall be determined using a daily average.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 4) The facility shall install, calibrate, maintain, and operate a CEMS for measuring sulfur dioxide emissions discharged to the atmosphere and shall record the input and output of the system.

- 5) Following the date of the initial performance test, compliance with the sulfur dioxide standard shall be determined based on the arithmetic average of the hourly emission rates during each daily period measured between 12 midnight and the following midnight using CEMS inlet and outlet data, if compliance is based on a percentage reduction; or outlet data only if compliance is based on an emission limit. These one (1) hour averages shall be expressed in nanograms per hour (pounds per hour) and shall be used to calculate the daily average emission rates. The one (1) hour averages shall be calculated using the data points required under 40 CFR 60.13(h).
- 6) The span value of the CEMS at the inlet to the sulfur dioxide control device shall be 125 percent of the maximum estimated hourly uncontrolled sulfur dioxide emissions of the MSWG unit, and the span of the CEMS at the outlet to the sulfur dioxide control device shall be 50 percent of the maximum estimated hourly uncontrolled sulfur dioxide emissions of the MSWG unit.

Compliance with the hydrogen chloride standards may be determined by using the following:

- 1) The percentage reduction in the uncontrolled hydrogen chloride emissions (%P_{HCl}) shall be computed using the following formula:

$$\%P_{HCl} = [(E_i - E_o) / E_i] \times 100$$

Where: %P_{HCl} is the percentage reduction in uncontrolled hydrogen chloride emissions.
E_i is the daily uncontrolled hydrogen chloride emission rate.
E_o is the daily hydrogen chloride emission rate measured at the outlet of the acid gas control device.

- 2) Kentucky Method 26 shall be used for determining the hydrogen chloride emission rate.

Compliance with the carbon monoxide standards may be determined as follows:

- 1) Compliance with the carbon monoxide emission limits shall be determined using Method 10.
- 2) A CEMS shall be installed, calibrated, maintained, and operated for measuring carbon monoxide at the incinerator outlet and shall record the output of the system.
- 3) Following the initial performance test, compliance with the carbon monoxide emission limits shall be determined based on the arithmetic average of the 4 hour emission rates measured using CEMS data.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**3. Testing Requirements:**

- a) Except as provided in 401 KAR 50:045, the following methods and procedures shall be used to determine compliance with Regulation 401 KAR 59:021, Sections 3 to 8. 40 CFR 60.13, Methods 1, 2, 3, 5, 6, 6A, 6C, 7, 7E, 9, 10, and 19, and Performance Specifications 1, 2, 3, and 4 are adopted without change in Section 12 of Regulation 410 KAR 59:021. Kentucky Methods 23 and 26, Kentucky Specification 4A, and Kentucky Procedure 1 are incorporated by reference in Section 10 of Regulation 401 KAR 59:021. For each performance test, an owner or operator may request that compliance be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established during each initial performance test.
- b) Pursuant to Regulation 401 KAR 59:021, Section 10(1), the following procedures and test methods shall be used to determine compliance with the standards for MSWG metals:
 - 1) Method 1 shall be used to select sampling sites and the number of traverse points. Method 2 shall be used to determine the stack gas velocity and volumetric flow rates.
 - 2) Method 3 shall be used for gas analysis.
 - 3) Method 5 shall be used for determining the compliance with the particulate matter emission standard. The minimum sample volume shall be 1.7 cubic meters (60 cubic feet). The temperature of the sample gas in the probe and filter holder shall be 120 (plus or minus) 14 C (248 (plus or minus) 25 F). An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.
 - 4) Both Method 9 and CEMS shall be used for determining compliance with the opacity standard. (If concurrent readings occur, Method 9 results will take precedence over CEMS data.)
 - 5) The owner or operator of an affected facility with a MSWG unit capacity greater than 500 lb per hr except for MSWG units equipped with a wet scrubber shall install, calibrate, maintain and operate a CEMS for measuring opacity and shall record the output of the system.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 6) Following the date of the initial performance test for the mass emission standard for particulate matter is completed, the owner or operator of an affected facility shall conduct a performance test for the mass emission standard for particulate matter on an annual basis (no more than 12 calendar months following the previous compliance test). For an affected facility located within a small MSWG plant, if all 3 performance tests for a 3 year period indicate compliance with the particulate matter standard, the owner or operator may forego a performance test for the subsequent 2 years. At a minimum, a performance test for particulate matter for an affected facility located within a small MSWG plant shall be conducted every third year (no more than 36 months following the previous compliance test). If a performance test conducted every third year within a small MSWG plant indicates compliance with the mass emission particulate matter standard, the owner or operator may forego a performance test for an additional 2 years.
 - 7) Following the date the initial performance test is completed, compliance with the opacity standard shall be determined by a 6 minute average of the opacity readings obtained from the CEMS.
- b) Pursuant to Regulation 401 KAR 59:021, Section 10(2), the following procedures and test methods shall be used to determine compliance with the standards for MSWG organics:
- 1) Kentucky Method 23 shall be used for determining compliance with dioxin or furan emission standards. The sampling time shall be 4 hours and the minimum sampling volume shall be 4.0 cubic meters (140 cubic feet).
 - 2) Following the date of the initial performance test, the facility shall conduct a performance test for dioxin or furan emissions on an annual basis (no more than 12 calendar months following the previous performance test). If all 3 performance tests in a 3 year period indicate compliance with the dioxin and furan emissions standard, the facility may forego a performance test for the subsequent 2 years. At a minimum, a performance test for dioxin or furan emissions shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test conducted every third year indicates compliance with the dioxin or furan emissions standard, the facility may forego conducting a performance test for an additional 2 years.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

c) Pursuant to Regulation 401 KAR 59:021, Section 10(3), the following procedures and test methods shall be used to determine compliance with the standards for sulfur dioxide:

- 1) The percentage reduction in the uncontrolled sulfur dioxide emissions (%P_{SO₂}) shall be computed using the following formula:

$$\%P_{SO_2} = [(E_i - E_o) / E_i] \times 100$$

Where:

%P_{SO₂} is the percentage reduction in uncontrolled sulfur dioxide emissions.

E_i is the daily uncontrolled sulfur dioxide emission rate.

E_o is the daily sulfur dioxide emission rate measured at the outlet of the acid gas control device.

- 2) Methods 6, 6A, or 6C, and 19 shall be used for determining the sulfur dioxide emission rate.
- 3) The sulfur dioxide performance test shall be conducted over 24 consecutive unit operating hours at maximum MSWG unit load. Compliance with the sulfur dioxide standard shall be determined using a daily average. The facility shall install, calibrate, maintain, and operate a CEMS for measuring sulfur dioxide emissions discharged to the atmosphere and shall record the input and output of the system.
- 4) Following the date of the initial performance test, compliance with the sulfur dioxide standard shall be determined based on the arithmetic average of the hourly emission rates during each daily period measured between 12 midnight and the following midnight using CEMS inlet and outlet data, if compliance is based on a percentage reduction; or outlet data only if compliance is based on an emission limit.

These 1 hour averages shall be expressed in nanograms per hour (pounds per hour) and shall be used to calculate the daily average emission rates. The 1 hour averages shall be calculated using the data points required under 40 CFR 60.13(h).

- 5) The span value of the CEMS at the inlet to the sulfur dioxide control device shall be 125 percent of the maximum estimated hourly uncontrolled sulfur dioxide emissions of the MSWG unit, and the span value of the CEMS at the outlet to the sulfur dioxide control device shall be 50 percent of the maximum estimated hourly uncontrolled sulfur dioxide emissions of the MSWG unit.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- d) Pursuant to Regulation 401 KAR 59:021, Section 10(4), the following procedures and test methods shall be used to determine compliance with the standards for hydrogen chloride:

- 1) The percentage reduction in the uncontrolled hydrogen chloride emissions (%P_{HCl}) shall be computed using the following formula:

$$\%P_{HCl} = [(E_i - E_o) / E_i] \times 100$$

Where:

%P_{HCl} is the percentage reduction in uncontrolled hydrogen chloride emissions.

E_i is the daily uncontrolled hydrogen chloride emission rate.

E_o is the daily hydrogen chloride emission rate measured at the outlet of the acid gas control device.

- 2) Kentucky Method 26 shall be used for determining the hydrogen chloride emission rate.
 - 3) Following the date of the initial performance test, the facility shall conduct a performance test for hydrogen chloride on an annual basis (no more than twelve (12) calendar months following the previous compliance test). If all three (3) performance tests in a three year period indicate compliance with the hydrogen chloride standard, the facility may forego a performance test for the subsequent two (2) years. At a minimum a performance test for hydrogen chloride shall be conducted every third year (no more than 36 months following the previous compliance test). If a performance test conducted every third year indicates compliance with the hydrogen chloride standard, the owner or operator may forego conducting a performance test for an additional 2 years.
- e) Pursuant to Regulation 401 KAR 59:021, Section 10(6), the following procedures and test methods shall be used to determine compliance with the standards for carbon monoxide:
- 1) Compliance with the carbon monoxide emission limits shall be determined using Method 10.
 - 2) A CEMS shall be installed, calibrated, maintained, and operated for measuring carbon monoxide at the incinerator outlet and shall record the output of the system.
 - 3) Following the initial performance test, compliance with the carbon monoxide emission limits shall be determined based on the arithmetic average of the 4 hour emission rates measured using CEMS data.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE

REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**4. Monitoring Requirements:**

- a) Pursuant to Regulation 59:021, Section 10(1)(e), 10(3)(d), and 10(6)(b), the facility shall install, calibrate, maintain, and operate a CEMS for measuring opacity (except for MSWG units equipped with a wet scrubber), sulfur dioxide emissions, and carbon monoxide emissions. The output of the system shall be monitored for opacity, the input and output of the system shall be monitored for the sulfur dioxide emissions, and the output of the system at the incinerator outlet shall be monitored for the carbon monoxide emissions.
- b) Pursuant to Regulation 401 KAR 59:021, Section 10(7):
 - 1) The facility shall install, calibrate, maintain, and operate a steam flow meter, shall measure steam flow in kilograms per hour (pounds per hour) steam on a continuous basis, and shall monitor the output of the monitor. Steam flow shall be calculated in 1 hour block averages.
 - 2) The facility shall install, calibrate, maintain, and operate a continuous monitoring system for measuring both secondary chamber temperature and the temperature of the flue gas stream at the inlet to the particulate matter air pollution control device and shall record the output of the device. Temperature shall be calculated in 4 hour block averages.
- c) The following procedures shall be used to determine compliance with Regulation 401 KAR 59:021, Section 8(5) to (7):
 - 1) Compliance with the percent reduction requirement for processed MSW or RDF shall be determined by calculating the percentage difference between the weight of MSW received at the affected facility and the weight of MSW processed in the MSWG unit or the weight of separated recoverable materials. Beginning the month after the date of the initial start-up for new MSWGs, the percent reduction in MSW shall be calculated on a monthly basis using the following monthly total weights, which are required by Regulation 401 KAR 59:021, Section 11(1)(h) and (i): the amount (by weight) of MSW or RDF received on a monthly basis at the affected facility, the amount (by weight) of MSW or RDF combusted on a monthly basis, the estimated amount (by type and weight) of recoverable materials reduced or separated for recovery on a monthly basis through an off-site or community source reduction or materials separation (recycling) program.
 - 2) At the end of each full calendar year (January through December) the annual average percent MSW reduction (by weight) shall be calculated by using the annual total weights. In calculating the percent MSW reduction, a maximum of 15 percent weight reduction shall be attributed to separation of yard waste. If the annual average percentage reduction requirement for processed MSW or RDF is not achieved, the MSW or RDF shall not be considered to be processed MSW or RDF.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

d) Pursuant to Regulation 401 KAR 59:021, Section 10(8):

- 1) CEMS and continuous monitoring data shall be used to determine compliance with emission standards and operating practices.
- 2) At a minimum, CEMS or continuous monitoring system data, if required, shall be obtained for 90 percent of the hours per day for 90 percent of the days per month that the unit is operated and gasifying MSW.
- 3) All valid CEMS or continuous monitoring system data shall be used in calculating emission rates and percent reductions, even if the minimum CEMS or continuous monitoring system data do not meet the 90 percent of the hours per day for the 90 percent of the days per month that the unit is operated.
- 4) If emissions data from CEMS or continuous monitoring systems are not obtained because of CEMS or monitoring system breakdown, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Cabinet or Methods 6, 6A, 7, 7E, 10, and 19, as appropriate, to provide necessary emission data for a minimum of 90 percent of the hours per day for 90 percent of the days per month the unit is operated and combusting MSW.
- 5) The procedures in 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the CEMS.
- 6) The CEMS shall conform to the applicable performance specifications in 40 CFR Part 60, Appendix B or Kentucky Specification 4A.
- 7) The requirements of Kentucky Procedure 1 shall be met in the operation of the CEMS.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**5. Recordkeeping Requirements:**

a) Pursuant to Regulation 401 KAR 59:021, Section 9, a Site-Specific Operation Manual shall be developed, maintained, and updated on a yearly basis. This manual shall address the following elements:

- 1) Summary of the applicable standards under Regulation 401 KAR 59:021.
- 2) Description of basic gasification theory applicable to a MSWG unit.
- 3) Procedures for receiving, handling, and feeding MSW.
- 4) MSWG unit start-up, shutdown, and malfunction procedures.
- 5) Procedures for maintaining proper combustion air supply levels.
- 6) Procedures for operating a MSWG unit within the standards established under Regulation 401 KAR 59:021.
- 7) Procedures for responding to periodic upset or off-specification conditions.
- 8) Procedures for minimizing particulate matter carry-over.
- 9) Procedures for monitoring solid waste burnout.
- 10) Procedures for handling ash.
- 11) Procedures for monitoring MSWG unit emissions.
- 12) Reporting and recordkeeping procedures.

This manual shall be reviewed annually with each person who has responsibilities affecting the operation of the affected facility. Documentation shall be kept showing compliance with this section. This documentation, at a minimum, shall include a description of the instruction given, the date of the instruction, the signature of the person receiving instruction, and copies of the ASME certificates issued to the chief facility operator and shift supervisor. This manual shall be available for inspection by the Cabinet upon request.

b) Pursuant to Regulation 401 KAR 59:021, Section 11, the following records shall be maintained:

- 1) Calendar date that data from performance tests, CEMS, or continuous monitoring systems were obtained.
- 2) Emission rates and parameters measured using the units and time bases required for demonstrating compliance.
- 3) Identification of the operating periods that the calculated sulfur dioxide or carbon monoxide emission rates, the opacity, or the operating parameters exceeded the applicable standards, with reasons for the exceedances and a description of corrective actions taken.
- 4) Identification of operating periods for which sulfur dioxide or carbon monoxide emissions, opacity, or operational data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 5) Identification of the times that sulfur dioxide or carbon monoxide emission, opacity, or operational data have been excluded from the calculation of average emission rates or parameters and the reason for excluding the data.
 - 6) The results of daily sulfur dioxide and carbon monoxide CEMS drift tests and accuracy assessments as required under Kentucky Procedure 1.
 - 7) The results of all annual performance tests conducted to determine compliance with the mass particulate matter, dioxin or furan, and hydrogen chloride standards.
 - 8) Beginning the month after the date of the initial start-up, the amount (by weight) of MSW or RDF received on a monthly basis at the affected facility, the amount (by weight) of MSW or RDF gasified on a monthly basis, and the amount of
 - 9) recoverable materials (by type and weight) separated on a monthly basis.
 - 10) Beginning the month after the date of the initial start-up, the estimated amount (by type and weight) of recoverable materials reduced or separated for recovery on a monthly basis through an off-site or community source reduction or materials separation (recycling) program.
 - 11) Beginning at the end of the first full calendar year after the date of initial start-up, the calculations of the annual average percentage of reduction in MSW achieved for the previous calendar year.
 - 12) Beginning the month after the date of the initial start-up and for each month thereafter, the amount (by weight) of vehicle batteries separated for recovery.
- c) Records of CEMS, steam flow, and temperature data shall be maintained for at least 2 years after date of recording and shall be made available for inspection upon request.
- d) Records showing the names of persons who have completed review of the operating manual, including the date of the initial review and all subsequent annual reviews, and the documentation required by 401 KAR 59:021, Section 9(7) [which includes, at a minimum, a description of the instruction given, the date of the instruction, the signature of the person receiving the instruction, and copies of the ASME certificates issued to the chief facility operator and the shift supervisor (if ASME adopts such a certification program)], shall be maintained for at least 2 years after the date of manual review and shall be made available to the Cabinet for inspection upon request.
- e) A description of the procedures employed for ensuring that unprocessed MSW or RDF is not combusted in an affected facility shall be maintained, along with associated records to demonstrate use of the procedures, and shall be made available for inspection upon request.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**6. Reporting Requirements:**

- a) Pursuant to Regulation 401 KAR 59:021, Section 10(7)(c)1., the initial demonstration of compliance with the percent reduction requirement for processed MSW or RDF; the requirements for not combusting unprocessed MSW or RDF, yard waste, or vehicle batteries in the facility; and the requirement to have an approved program for removing household batteries from the MSW prior to combustion; shall be required at the end of the second full calendar year (January through December) after the date of initial start-up of an affected facility.
- b) Pursuant to Regulation 401 KAR 59:021, Section 10(7)(c)3., the facility may elect to achieve, either wholly or partially, the percent reduction requirement for processed MSW or RDF, the prohibition of yard waste or vehicle batteries in Section 8(6) of 401 KAR 59:021, or the removal of household batteries in Section 8(7) of 401 KAR 59:021, through an off-site source reduction or materials separation (recycling) program.
The owner or operator shall submit a separation plan which contains sufficient information to measure the performance of the off-site separation program on an annual basis beginning the first full calendar year (January through December) for the initial start-up of the affected facility, except as provided in subparagraph 4 of 401 KAR 59:021, Section 10(7)(c). The off-site separation plan shall be submitted along with the initial compliance demonstration results.
- c) Pursuant to Regulation 401 KAR 59:021, Section 10(7)(c)4., the facility shall be responsible for operating the affected facility in compliance with all standards including the prohibition on combustion of unprocessed MSW, yard waste, and vehicle batteries under Section 8(5) and (6) of 401 KAR 59:021, and the implementation of a program for removal of household batteries under Section 8(7) of 401 KAR 59:021. If another party provides processed MSW, or removes yard waste or vehicle batteries, or removes household batteries elects to become a co-operator for purposes of demonstrating compliance with Section 8(5), (6), or (7) of 401 KAR 59:021, the owner or operator of the affected facility shall submit at the time of submittal of the initial compliance demonstration related to the requirements of Section 8(5), (6), or (7) of 401 KAR 59:021:
 - 1) A copy of a validly executed contract between the owner and operator of the affected facility and the party providing the processing of MSW, removal of vehicle batteries, removal of yard waste, or removal of household batteries which contains the following provisions:
 - a. An undertaking that the party will comply with the requirements of Section 8(5), (6), or (7) of 401 KAR 59:021; and
 - b. An undertaking by the party to meet the requirements of Section 8(5), (6), or (7) of 401 KAR 59:021, and a description of the specific action that will be implemented to comply with these requirements; and

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

- 2) A certified statement signed by an authorized official representing the party that they agree to become a cooperator, or sole operator, for the purpose of demonstrating compliance with Section 9(5), (6), or (7) of 401 KAR 59:021 and recognizing that enforcement action, including penalties, may be taken against the party for failure to demonstrate compliance with these requirements.
- d) Pursuant to Regulation 401 KAR 59:021, Section 11, the following shall be submitted to the Cabinet:
 - 1) After completion in accordance with applicable administrative regulations, the owner or operator of an affected facility shall submit to the Cabinet the initial performance test data, the performance evaluation of the CEMS using the applicable performance specifications in 40 CFR Part 60, Appendix B or Kentucky Specification 4A, and the maximum MSWG unit load within 60 days upon completion.
 - 2) A plan describing the procedures for separating materials for recovery to achieve the 40 percent or greater MSW reduction requirement for processed MSW or RDF, a plan describing the procedures for ensuring that vehicle batteries are not processed in the affected facility, and a description of the program for removal of household batteries shall be provided at the time of submittal of the initial demonstration of compliance with the requirements of Section 8(5), (6), and (7) of Regulation 401 KAR 59:021, which are as follows:
 - a. Section 8(5). On or after the date of initial start-up, no unprocessed MSW or RDF will be processed in the facility.
 - b. Section 8(6). No yard waste or vehicle batteries will be processed in the facility.
 - c. Section 8(7). Prior to initial start-up, a program will be established, which has been approved by the Cabinet, to remove household batteries from MSW prior to processing. On and after the date of initial start-up, the owner or operator shall comply with the approved plan for removing household batteries from MSW.

This information shall be provided by the 30th day following the end of the second full calendar year after initial start-up.

- 3) The owner or operator of an affected facility shall submit quarterly reports to the Cabinet containing the information listed in Section B.5.b. of this permit, and Regulation 401 KAR 59:005, Section 3(3). Both a printed report and computer tape or discs shall be furnished in the format specified by the Cabinet. All reports shall be postmarked by the 30th day following the end of each calendar year.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Unit: 02 (02) - Yard Area & Haul Road

Description:

Municipal Solid Waste Gasifier Unit Yard Area and Haul Road

APPLICABLE REGULATIONS:

Regulation 401 KAR 63:010, Fugitive Emission.

1. Operating Limitations:

Pursuant to Regulation 401 KAR 63:010, Section 3, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Aggregate materials shall be sufficiently wetted or enclosed so as to prevent the emission of fugitive particulate matter during handling, storage and loadout. In addition, a wetting agent shall be applied to the haul road and yard area on a regular basis so as to suppress fugitive emissions of particulate matter during transporting of materials.

Compliance Demonstration Method:

Daily observations are required during daylight hours to determine whether the conditions are normal and reasonable precautions are taken. A log shall be kept of abnormal situations.

2. Emission Limitations:

Pursuant to Regulation 401 KAR 63:010, Section 3, discharge of visible fugitive dust emissions beyond the property line is prohibited.

3. Testing Requirements:

None.

4. Monitoring Requirements:

None.

5. Recordkeeping Requirements:

None.

6. Reporting Requirements:

None.

SECTION C - GENERAL CONDITIONS

A. Administrative Requirements

1. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:040, Section 3(1)(b) and is grounds for enforcement action including but not limited to the termination, revocation and reissuance, or revision of this permit.
2. This permit shall remain in effect for a fixed term of ten (10) years following the original date of issuance. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:040, Section 15].
3. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 1a, 11].
4. This permit may be revised, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance shall not stay any permit condition [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 1a, 4,5].
5. This permit does not convey property rights or exclusive privileges [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 1a, 8].
6. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:040 Section 11(3)].
7. This permit shall be subject to suspension at any time the permittee fails to pay all fees within 90 days after notification as specified in 401 KAR 50:038, Air emissions fee. The permittee shall submit an annual emissions certification pursuant to 401 KAR 52:040, Section 20.

SECTION C - GENERAL CONDITIONS (CONTINUED)**B. Recordkeeping Requirements**

1. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of at least five years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [401 KAR 52:040 Section 3(1)(f)].
2. The permittee shall perform compliance certification and recordkeeping sufficient to assure compliance with the terms and conditions of the permit. Documents, including reports, shall be certified by a responsible official [401 KAR 52:040, Section 21].

C. Reporting Requirements

1.
 - a. In accordance with the provisions of 401 KAR 50:055, Section 1 the permittee shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
 - i. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
 - ii. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other approved electronic media) and shall cause written notice upon request.
 - b. The permittee shall promptly report deviations from permit requirements including those attributed to upset conditions (other than emission exceedances covered by 1.a above) , the probable cause of the deviation, and corrective or preventive measures taken; to the Regional Office listed on the front of this permit within 30 days. Other deviations from permit requirements shall be included in the semiannual report [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 5, 3].
2. The permittee shall furnish information requested by the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or compliance with the permit. [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 1a, 8].
3. Summary reports of monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation.

SECTION C - GENERAL CONDITIONS (CONTINUED)

The summary reports are due January 30th and July 30th of each year. All reports shall be certified by a responsible official. All deviations from permit requirements shall be clearly identified in the reports [401 KAR 52:040, Section 21].

D. Inspections

1. In accordance with the requirements of 401 KAR 52:040, Section 3(1)(f) the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times:
 - a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation;
 - b. To access and copy any records required by the permit;
 - c. Inspect, at reasonable times, any facilities, equipment (including monitoring and pollution control equipment), practices, or operations required by the permit. Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency.
 - d. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.

E. Emergencies/Enforcement Provisions

1. The permittee shall not use as defense in an enforcement action, the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Cabinet Provisions and Procedures for Issuing State-Origin Permits, Section 1a, 3].
2. An emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
 - a. An emergency occurred and the permittee can identify the cause of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
 - d. The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two working days after the time when emission limitations were exceeded due to the emergency and included a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
3. Emergency provisions listed in General Condition E.2 are in addition to any emergency or upset provision contained in an applicable requirement.
4. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof.

SECTION C - GENERAL CONDITIONS (CONTINUED)**F. Compliance**

1. Periodic testing or instrumental or non-instrumental monitoring, which may consist of record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstration of continuing compliance with the conditions of this permit. For the purpose of demonstration of continuing compliance, the following guidelines shall be followed:
 - a. Pursuant to 401 KAR 50:055, General compliance requirements, Section 2(5), all air pollution control equipment and all pollution control measures proposed by the application in response to which this permit is issued shall be in place, properly maintained, and in operation at any time an affected facility for which the equipment and measures are designed is operated, except as provided by 401 KAR 50:055, Section 1.
 - b. All the air pollution control systems shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers. A log shall be kept of all routine and non-routine maintenance performed on each control device.
2. Pursuant to 401 KAR 52:040, Section 19, the permittee shall certify compliance with the terms and conditions contained in this permit by January 30th of each year, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an approved alternative) to the Regional Office listed on the front of this permit in accordance with the following requirements:
 - a. Identification of the term or condition;
 - b. Compliance status of each term or condition of the permit;
 - c. Whether compliance was continuous or intermittent;
 - d. The method used for determining the compliance status for the source, currently and over the reporting period, and
 - e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
 - f. The certification shall be postmarked by January 30th of each year. Annual compliance certifications should be mailed to the following addresses:

Division for Air Quality Hazard Regional Office 233 Birch Street, Suite 2 Hazard, KY 41701-2179	Division for Air Quality Central Files 803 Schenkel Lane Frankfort, KY 40601-1403
--	--
3. Permit Shield - A permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with all:
 - (a) Applicable requirements that are included and specifically identified in this permit; or
 - (b) Non-applicable requirements expressly identified in this permit.

SECTION C - GENERAL CONDITIONS (CONTINUED)**G. Construction Requirements:**

1. Pursuant to 401 KAR 52:040, Section 12(3), unless construction is commenced on or before 18 months after the date of issuance of this permit, or if construction is commenced and then stopped for any consecutive period of 18 months or more, or is not completed within a reasonable timeframe then the construction and operating authority granted by this permit for those affected facilities for which construction was not completed shall immediately become invalid. Upon a written request, the Cabinet may extend these time periods if the source shows good cause.
2. Pursuant to 401 KAR 52:040, Section 12(4)(a) and 401 KAR 59:005, General provisions, Section 3(1), within 30 days following construction commencement, within 15 days following start-up and attainment of maximum production rate, or within 15 days following the issuance date of this permit, whichever is later, the owner and/or operator of the affected facilities specified on this permit shall furnish to the Regional Office listed on the front of this permit, with a copy to the Division's Frankfort Central Office, the following:
 - a. Date when construction commenced, (See General Condition G.1).
 - b. Start-up date of each of the affected facilities listed on this permit.
 - c. Date when maximum production rate was achieved, (See General Condition G.3.b).
3.
 - a. Pursuant to 401 KAR 59:005, General provisions, Section 2(1), this permit shall allow time for the initial start-up, operation and performance testing of the affected facilities listed herein. However, within 60 days after achieving the maximum production rate at which the affected facilities will be operated, but not later than 180 days after initial start-up of such facilities, the owner or operator shall conduct performance tests on the Municipal Solid Waste Gasifier and furnish the Division's Frankfort office a written report of the results of such performance tests.
 - b. Pursuant to 401 KAR 59:005, General provisions, Section 3(1)(b), unless notification and justification to the contrary are received by this Division, the date of achieving the maximum production rate at which the affected facilities will be operated shall be deemed to be 30 days after initial start-up.
 - c. Pursuant to Section VII 2.(1) of the policy manual of the Division for Air Quality as referenced by 401 KAR 50:016, Section 1.(1), at least 30 days prior to the date of the required performance test(s), the permittee shall complete and return a Compliance Test Protocol (Form DEP 6027) to the Division's Frankfort office. The protocol form shall be utilized by the Division to determine if a pretest meeting is required. Pursuant to 401 KAR 50:045, Section 5, the Division shall be notified of the actual test date at least 10 working days prior to the test(s).
 - d. Pursuant to Section VII.3 of the policy manual of the Division for Air Quality as referenced by 401 KAR 50:016, Section 1(1), results of performance test(s) required by the permit shall be submitted to the Division by the source or its representative within forty-five days after the completion of the fieldwork.
 - f. Pursuant to Section VII 1.(2 and 3) of the policy manual of the Division for Air Quality as referenced by 401 KAR 50:016, Section 1.(1), if a demonstration of compliance, through

SECTION C - GENERAL CONDITIONS (CONTINUED)

performance testing was made at a production rate less than the maximum specified in the application form, then the permittee is only authorized to operate at a rate that is not greater than 110% of the rate demonstrated during performance testing. If and when the facility is capable of operation at the rate specified in the application, compliance must be demonstrated at the new production rate if required by the Division.

4. Operation of the affected facilities authorized by this permit shall not commence until compliance with applicable standards specified herein has been demonstrated in accordance with the requirements of 401 KAR 52:040, Section 12(4)(b). Until compliance is demonstrated, the source may only operate for the purpose of demonstrating compliance.